

Notice of Allowability

Application No.

10/693,393

Examiner

Erica E Cadugan

Applicant(s)

TAGA ET AL

Art Unit

3722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to election filed 5/20/2005 and interview of 6/7/2005.
2. ☒ The allowed claim(s) is/are 1,2 and 4.
3. ☒ The drawings filed on 03 March 2004 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 10/24/03
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
2. Authorization for this examiner's amendment was given in a telephone interview with Thomas Scherer on June 7, 2005.
3. The application has been amended as follows:

Claim 1 (Currently Amended). A multi-axial machine tool comprising:

a leg;

a portal bed disposed on an upper face of the leg;

a spindle head for rotatably supporting a spindle for rotation around a spindle axis substantially in vertical for multi-axially working [to] a work using a tool attached to the spindle,

a table unit detachably mounted on the upper face of the leg so as to be accommodated inside of the bed, the table unit including:

a table base fixed to the upper face of the leg,

a turning table turnably disposed on an inclined turning surface of the table base formed so as to be inclined in a descending manner toward a front side of the machine tool, and

a work table supported on the turning table so as to be turnable around an axis in parallel with the spindle axis when the work table is located at a reference working position;

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wherein there is formed a clearance between the inclined turning surface of the table base and the portal bed, and the clearance is covered with a cover member extending from the inclined turning surface to the portal bed.

Claim 3 has been canceled (incorporated into claim 1).

Claim 4 (Currently Amended). A multi-axial machine tool for multi-axially working a work using a tool attached to a spindle, comprising:

a turning table turnably disposed on an inclined turning surface which is inclined in a descending manner toward a front side of the machine tool at an angle of smaller than 45° with respect to a rotation axis of the spindle; and

a work table supported on the turning table, the work table being turnable around an axis substantially in parallel with the axis of the spindle when the turning table is located at a reference working position;

wherein there is formed a clearance between the inclined turning surface and a portal bed to which the spindle is attached, and the clearance is covered with a cover member extending from the inclined turning surface to the portal bed.

Non-elected claim 5 has been canceled.

4. The following is an examiner's statement of reasons for allowance:

Firstly, Examiner notes that U.S. Pat. No. 4,644,635 to Murai et al., U.S. Pat. No. 3,822,959 to Tabard, and U.S. Pat. No. 5,172,464 to Kitamura are representative examples of the closest prior art of record to the independent claims 1 and 4.

Murai teaches a multi-axial machine tool wherein element 1 constitutes a "leg", and that "portal bed" 2 is "disposed on an upper face thereof" (Figures 1-2). Also, spindle 3a is mounted

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on spindle head 3, and spindle 3a has a vertical axis of rotation for the tool (Figures 1-2).

Additionally, Murai teaches a table unit mounted on the upper face of the leg, which table unit is shown clearly in Figure 2 and includes at least the elements 5-7. Note that the table unit is considered to be “detachably mounted” to the leg 1, as broadly claimed, in that it is inherently able to be “detached” therefrom in some manner, e.g., by prying it off with a crowbar. Further note that element 5 constitutes a “table base”, element 6 a “turning table”, and element 7 a “work table” as claimed, noting that the inclined 45-degree turning surface can be seen in Figure 1. Further note that the Figure 1 shows the workpiece 9 located in such a position on table 7 so as to be rotated about a vertical axis parallel with the spindle axis.

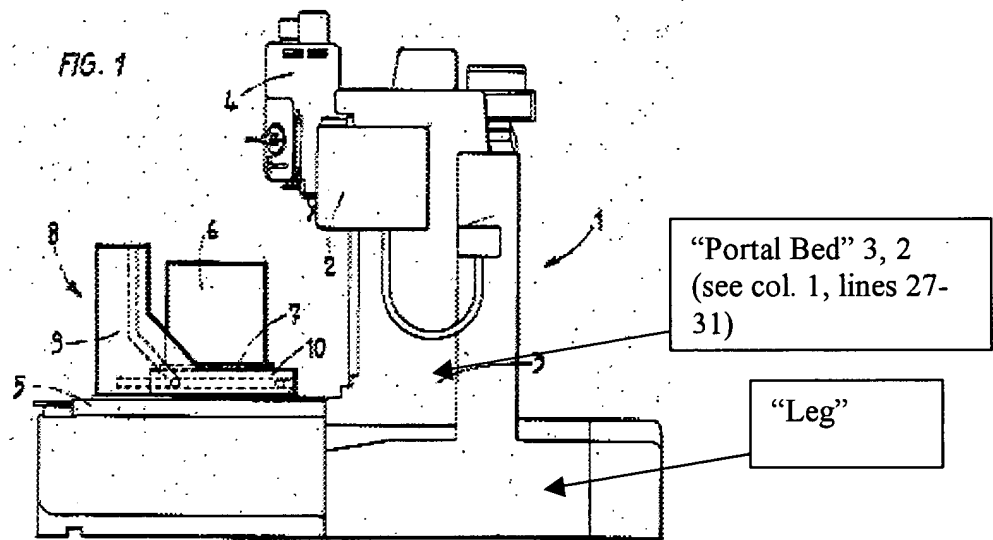
However, Murai does not teach that any “clearance between the inclined turning surface of the table base and the portal bed” is “covered with a cover member extending from the inclined surface to the portal bed” as set forth in the independent claims 1 and 4.

Additionally, even assuming arguendo that it would have been obvious to have in some manner applied a cover, such as one of the type taught by U.S. Pat. No. 6,116,830 to Azema, for example (see Figures 1 and 1a, for example), to extend between the spindle and the portal of Murai to thus follow the movements of the spindle taught by Murai, it is noted that the invention as presently claimed in the independent claims would still not result because such a cover does not extend “from the inclined turning surface” (of the table base) “to the portal bed” as claimed. Further note that it is unclear how a cover such as that claimed would function with the Murai device without a modification to the Murai device, noting that the table described above moves in the left/right direction (as viewed in Figure 1) relative to the portal bed (moves in the direction extending into the paper relative to the portal bed as viewed in Figure 2).

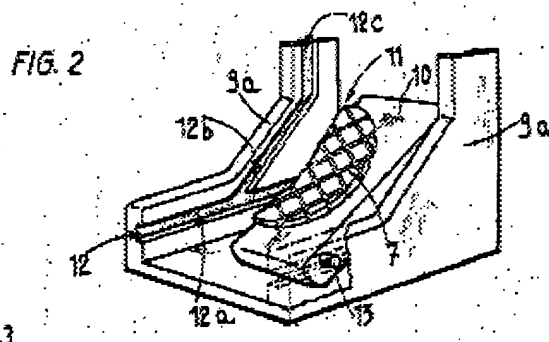
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There being no combinable teaching in the prior art that would motivate one having ordinary skill in the art to so modify the teachings of Murai, thus, for at least the foregoing reasoning, Murai does not render obvious the present invention as set forth in independent claims 1 and 4.

Examiner further notes that U.S. Pat. No. 3,822,959 to Tabard teaches a multi-axial machining device (see the reproduction of Figure 1 below).



4 is considered a "spindle head". It appears that the spindle supported by the spindle head rotates about a vertical axis.



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Note that element 9 is a “table base”, and that it is “fixed” to the upper surface of the “leg” at 5 (see col. 1, lines 40-41). Further, noting that the indexing apparatus 8 (formed in part by element 9) is an independent entity specifically described as “secured to table 5” (col. 1, lines 40-41), it would appear that the indexing apparatus 8 would be able to be easily detached from the table 5 by unsecuring whatever type of securement was used. Additionally, 10 constitutes a “turning table”. Note that the grooves 12, etc. have portions that are “inclined”, as broadly claimed, “in a descending manner toward a front side of the machine tool” (see Figure 1). Additionally, element 7 represents a rotary “work table” as claimed (see col. 1, lines 38-44 and especially lines 43-44). Note that in the position shown in Figure 4, the workpiece 6 rotates about a vertical axis.

Re claim 2, see col. 2, lines 16-21, noting that as broadly claimed, portions of the grooves can be thus considered to extend at such an angle, i.e., when the plate passes through the angle less than 45 degrees, it's contacting a surface that so extends at that localized portion of contact.

Even assuming *arguendo* that the spindle axis is not considered to be vertical (since Tabard does not explicitly teach such), it is noted that both horizontal and vertical spindle axes are well-known and widely used in the art.

However, even assuming *arguendo* that it would have been obvious to have provided a vertical spindle axis, the present invention as set forth in independent claims 1 and 4 is still not taught by Tabard, because Tabard does not teach that any “clearance between the inclined turning surface of the table base and the portal bed” is “covered with a cover member extending from the inclined surface to the portal bed” as set forth in the independent claims 1 and 4.

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Further, there is no combinable teaching in the prior art of record that would reasonably motivate one having ordinary skill in the art to so modify the teachings of Tabard, and thus, Tabard does not render obvious the present invention as set forth in independent claims 1 and 4.

U.S. Pat. No. 5,172,464 to Kitamura teaches a multi-axial machine tool wherein element 4 constitutes a "table base", 36 a "turning table", and the pallet P supported on 36 constitutes the "work table" as claimed. Note that the member 38 has a groove 39 (Figures 1, 3) that has portions that are considered "inclined in a descending manner toward a front side of the machine tool" as broadly claimed, and that at various places of travel of the table base 4 along that groove 39, the groove has an "inclined turning surface" that is inclined at an angle smaller than 45 degrees with respect to the vertical spindle axis (see figures 1, 3, for example). (Again, re claim 1, note that, as broadly claimed, the "table unit" is considered to be "detachably mounted" in that it is "able to be detached" in some manner, such as via a crow bar, for example.)

However, Kitamura does not teach that any "clearance between the inclined turning surface of the table base and the portal bed" is "covered with a cover member extending from the inclined surface to the portal bed" as set forth in the independent claims 1 and 4.

Also, there is no combinable teaching in the prior art of record that would reasonably motivate one having ordinary skill in the art to so modify the teachings of Kitamura, and thus, for at least this reasoning, Kitamura does not render obvious the present invention as set forth in independent claims 1 and 4.

The foregoing examples being representative examples of the closest prior art of record to the present invention as set forth in the independent claims, the prior art of record neither anticipates nor renders obvious the present invention as set forth in independent claims 1 and 4.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erica E Cadugan whose telephone number is (571) 272-4474. The examiner can normally be reached on M-F, 7:30 a.m. to 5:00 p.m., alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Derris H. Banks can be reached on (571) 272-4419. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Erica E Cadugan
Primary Examiner
Art Unit 3722

eec
June 7, 2005